

Treatment Pipeline for Parkinson's Disease

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John N. Caviness, M.D.
Mayo Clinic Arizona

Disclosures: None

Off-label drug usage: None

BE

OPTIMISTIC!!

New Levodopa Approaches

Movement disorders, Poewe & Antonini, 2015

NOVEL FORMULATIONS AND DELIVERY OF LEVODOPA

TABLE 1. LEVODOPA-BASED APPROACHES IN DEVELOPMENT

	DRUG	MECHANISM	TRIAL STATUS
NOVEL LD FORMULATION	IPX 066	LD-ER	Phase 3, completed
	XP21279	ER LD-prodrug	Phase 2, ongoing
	AP CD/LD	prolonged gastric retention	Phase 2
	DM-1992	Combined IR/ER gastric retention	Phase 2
COMT-INHIBITORS	Opicapone	COMT-inhibition	Phase 3, ongoing
	ODM-101	novel LD/CD/ENT combination	Phase 2, ongoing
LD DELIVERY	LD/CD intestinal gel	cont. jejunal delivery	Phase 3, completed
	ND0612/0650	s.c. LD/CD delivery	Phase 1/2, ongoing
	CVT-301	LD inhaler	Phase 3 planned

R = immediate release CR = controlled release LD = levodopa CD = carbidopa ENT = entacapone

New Drugs for PD

- OPICAPONE

- Like Comtan and Tasmar
- Reduces “off time” and extends action of levodopa
- Once per day

New Drugs for PD

- PARDOPRUNOX
 - Stimulates dopamine and serotonin
 - Additive to dopamine agonists
 - Early or late PD

New Drugs for PD

- BUDIPINE

- Different chemical mechanism
- Symptomatic effect
- Heart issues are a concern
- Shown to be additive to dopamine agonists

New Drugs for PD

- POTENT DOPAMINE AGONISTS
 - More effective in decreasing number of levodopa doses
 - Once a day dose

New Drug Delivery for PD

- SUBCUTANEOUS INFUSION

- Apomorphine
- Levodopa preparation

- MEMBRANE BOUND PARTICLES

TREATMENTS THAT MODIFY THE COURSE OF PD

A view from the pipeline

New Drugs for PD

potential modification

- Alpha-Synuclein vaccines
 - Phase I-II in progress
- Monoclonal antibodies
 - Phase I-II in progress
- Other mechanisms to detoxify α -synuclein

THE DAWN OF INDIVIDUALIZED MEDICINE IN PD IS HERE!

- Identifying the most effective treatment for a PD individual by testing that patient's molecular makeup
- “Pharmacogenomics”
- Examples
 - LRRK₂
 - High kinase activity treated by inhibitors
 - Mitochondrial activity
 - Low activity may be treated by Co-Enzyme Q
 - Iron
 - Chelation may help those patient with high levels
- Trials in next 5 years, available in 10 years??